

EXPANSIVE GRAMMAR

JOBY JOHN

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EXPANSIVE GRAMMAR

By

JOBY JOHN

ENGLISH LANGUAGE
EXPANSIVE GRAMMAR

By Joby John
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The will to win, the desire to succeed and the urge to reach my full potential are the keys that will unlock the door to personal excellence.

DEDICATION

I dedicate this work to my master Sri Suji Kuriakose, Dr. Siby James (Associate Professor, Department of English, St, Thomas College, Pala), Prof. Mathew Joseph, Mr. P. J. Johnson (Associate Professor, Department of English, St, Thomas College, Pala), Dr. Mini John (Head of the Department of English, Alphonsa College, Pala), Mr. William Zacharias (Head of the Department of English, St. Thomas College, Pala) who are the inspiring force behind this work and to my parents Mr. John Augustine and Mrs. Marykutty John.

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FORWARD

Neurolinguistics is considered today by many modern linguists as the most effective method of learning and analyzing languages, especially in the case of second language acquisition. It has often been felt that lack of scientific analysis was the main hurdle in the path of examining the language in its production, reception and meaning generation.

The present work is a textbook intended to be useful for understanding the universality of structural semantics in language acquisition. Expansive Grammar, as the title indicates, gives special emphasis to the general features of language development and meaning generation while leaving much useful light on the prominent linguistic theories of the East (i.e. Bhartrhari's Sphota theory) and of the West (i.e. Noam Chomsky's Transformative Generative Grammar). Even though there are multifarious languages with their own special features, the language expansion must have a unique nature in the process of its expansion, reception and meaning evolution.

Joby John, whose aptitude for linguistics is that he has been learning this with deep interest for three years. In the course of his book he exposes certain features in language acquisition and suggests some practical methods for analyzing it. The priorities of the author and the special features of the work that distinguishes it are ably summarized in the introduction. The simple style adopted by the writer makes the learning process regarding the major concepts easy and even pleasurable. He has carefully analyzed the samples of major language families. These were found to be both appropriate and interesting.

This book will be of interest not only to students of linguistics, but to the general readers as well. I wish all success to the effort taken by the author for this work.

Suji Master

Senior Instructor

Indian School of Martial Arts

ISMA-KALARI MUTTOM

PREFACE

Expansive Grammar is a study in Neurolinguistics. It is an attempt to study the philosophy of language which is one of the most important areas in modern philosophy and linguistics. It is also an attempt to spell the structures of language out in order to come up with the relevance of structure in semantics and to investigate how language acquisition happens in the brain. Language origin, its acquisition and meaning production are the most intensely debated topics in linguistics. This book helps a language learner to find out whether there is any universality in structural semantics in language acquisition.

The primary aim of this book is to introduce methods that facilitate an objective analysis of empirical findings in the realm of structural semantics which get shared among different languages. The foremost pronouncement of this book is that all languages in the world have a unique structure in language acquisition, competency and meaning generation. In order to prove the universality of structural semantics in language acquisition, one of the leading linguistic theories of the East, i.e. Bhāṭṛhari's theory of Sphota, and of the West, Noam Chomsky's Transformational Generative Grammar,

are scrutinized and applied to the samples of the selected language families. Though the differences among the performances of the languages are undisputed, all of them are acquired in the brain as a consequence of consistent means. Thus emotions, thoughts, facts, representations, grammar and the like which are expressed through other languages, are constructed in the mother tongue. All these varieties are synthesized in human brain which is of a unique structure. The introductory chapter explores the major tenets of language and meaning and describes at length the multifarious concepts related to it. It also deals with the prescriptive theories which have assumed that the tenor of a word is simply its “reference”, the matter it stands for. But there occurs a semantic dilemma when the word has an ideal existence. For example, though a mental picture or experience is possible, the entity of “monster” or “ghost” is abstract. Theories regarding language are encapsulated in the introductory chapter.

The second chapter entitled “Structural Semantics” discusses the fundamental relationship between syntax and semantics. It also deals with how meaning can be composed from smaller elements by applying Bhratrhari’s Sphota theory and probes how not only phonemes and morphemes but also full sentences are produced within a fraction of time. It also demonstrates

that harmonious utterances are articulated together to generate meaning. The relevance of the implementation of the theory of Sphota is to solve the problem of semantics in general linguistics and to examine the global nature of meaning generation.

The third chapter entitled ‘Universal Structure’ elucidates the uniqueness of the structure of all languages by examining samples from selected language families with the application of TG Grammar and manifests the existence of a universal structure.

The fourth chapter named “Language Acquisition and Neurolinguistics” deals with the way children learn to understand and speak their mother tongue and the acquisition of grammar, growth in sentence length and complexity. It also deals with the neurological basis of language and contains a detailed study of brain structure and function. The relevance of this chapter is to underline that language acquisition occurs in the brain and at the level of structural semantics too.

The concluding chapter asserts that there is universality in structural semantics and it plays a vital role in language acquisition. This book concludes by introducing Expansive Grammar by which universal structural semantics can be analyzed.

ACKNOWLEDGEMENTS

I take this opportunity to acknowledge the valuable assistance I have received from various quarters during the preparation of this disquisition entitled *Expansive Grammar*.

First and foremost, I thank God for the eternal providence and blessings showered upon me throughout the preparation of this work. I am deeply indebted to Mr.Navy George for giving me a chance to publish my book and to Dr.TC Thankachan for his valuable help and encouragement. I express my deep sense of gratitude to Dr. Mini John for her generous support.

I also express my sincere gratitude to Dr.Siby James, my scholarly guide, for his valuable guidance and constant encouragement in the preparation of this academic work. I have benefited a lot from his advice on the general plan and arrangement of the material as well as from the suggestions for improvement of this work. I also owe a debt of gratitude to Prof. William Zacharias and Prof. P. J Johnson, Bhagyasree B and Maria Joseph, who gave me the chance to pore over the new linguistic

field of neurolinguistics. I am very glad to express my hearty gratitude to Sri. Suji Kuriakose, my master, Prof. Shan Augustine, Mr. Aby John, Mr. Jomy Joseph and Joseph Francis who helped me when I started my project, for their guidance, timely advice, love and consideration they bestowed upon me throughout the preparation of this book. I would also like to put on record my thankfulness to the staff of the College Library (St. Thomas College of Teacher Education, Pala and St. Thomas College, Pala), the University Study Centre in the campus, St. Thomas Institute of Information Technology, Pala and Turn Books Publishers for their services. I also convey my deep sense of gratitude to my parents and brothers for their love and support.

Chapter One

LANGUAGE

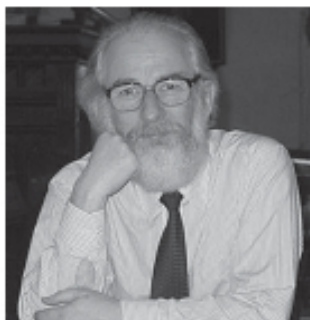
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- 1.1. Historical Development of Language
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CHAPTER ONE

LANGUAGE

Language has been an object of mystery and a subject of research since communication (between nature and humans) got started. Culture or language is a matter of unresolved debate in ontology. Philosophers take multifarious positions in the hypothetical quest whether language is a part of culture or culture is a part of language. It is true that culture is the product of the totality of the unique subjective perception of reality and the preservation and transmission of this collective consciousness in the form of objective reality of a community. Language is



DAVID CRYSTAL
(06-07-1941)

Works

1. *Cambridge Encyclopedia of Language*
2. *Cambridge Encyclopedia of the English Language*
3. *The Stories of English*
4. *Txtng: The Gr8 Db8*

Figure 1.1

the medium through which objective reality is acquired, preserved and transmitted and through which contrasting realizations are made possible. This statement shows the superiority of language to culture and culture to language. That is, one cannot be without the other. Therefore the hypothetical search can be synthesized as these two notions are like the two sides of a coin. David Crystal describes the chronological development of language and linguistics in his epoch making work *The Cambridge Encyclopedia of Language*.

Often, the observations have been subjective and anecdotal, as people reflected on such topics as the nature of meaning, ideals of correctness and the origins of language. But from the earliest periods, there has been an objective approach, with scholars investigating aspects of grammar, vocabulary and pronunciation in detailed and organized way. At the end of the 18th century the subject attracted an increasing number of specialties, so much so that it rapidly became possible to see the emergence of a new field of scientific research with language analysis as its focus. This approach, first known as philology, dealt exclusively with the historical development of language (408).

1.1. Historical Development of Language

It is necessary to have an awareness of the historical developments of language in order to explore the major tenets of language and meaning and to describe at length the multifarious concepts related to it. Objective perceptions and the attempts to preserve and to transmit this collective consciousness are the causes of language. The shift in objective perception, due to dissociation, difference, transfer, distance, competency and the association of the differences, is the cause of various languages and religions. Undisclosed realities and different approaches to perceive them cause the origin of various religions (religion means ‘a particular interest’). According to David Crystal, “A religious or philosophical awareness of language can be found in many early civilizations, in particular, several of the important issues of language analysis were addressed by the grammarians and philosophers of Ancient Greece, Rome and India” (408).

1.1.1. Role of Religion

Each religion preserved and transmitted the undisclosed reality through oral and written languages. Recurring images in all cultures show the validity of the uniqueness of undisclosed reality. Buddhism through the

Pali Canon (based on oral tradition), Christianity through the Bible (written in Hebrew, Greek), Hinduism through the Vedas (written in Sanskrit), Islam through the Quran (written in Arabic), Judaism through Torah and all religions through their sacred scripts (which are written in their own language) convey the abstract reality, ‘meaning’, with the chain associations of sounds and symbols. Later when translation became necessary, grammarians started to interpret the nature and structure of language.

Every ancient religion claims that sound is the cause of creation. For example, it is written in the Bible that Adam named the creatures. The word represents the reality or meaning. A word conveys meaning through the association of difference. Each word of a particular language is understood with the help of the other words available. And the associations of the different words in languages represent the reality or meaning. That is, ultimate meaning is not possible without having an Omni glottal language.

1.1.2. Philosophers on Language

Many philosophers have tried to untie the mysterious nature of language and meaning. David Crystal says:

The earliest surviving linguistic debate is found in the pages of Plato (C-427-397 BC) (i) Cratylus is a dialogue about the origins of language and the nature of meaning—first between Socrates and Hermogenes, then between Socrates and Cratylus. Homogeneous hold the view that language originated as a product of convention, so that the relationship between words and this

is arbitrary. ‘For nothing has its name by nature, but only by usage and custom’. Cratylus hold that the opposite position that language came into being naturally and therefore an intrinsic relationship exists between words and things: ‘there is a correctness of name existing by nature for everything: a name is

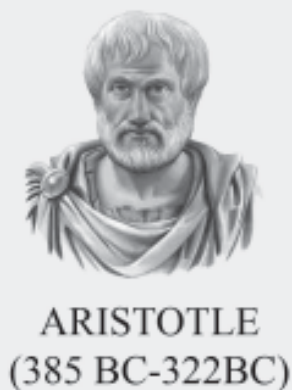


Figure 1.2

not simply that which a number of people jointly agree to call a thing (408).

Aristotle (384-322 BC) in his essay *De Interpretation* supported the former viewpoint. The debate is being continued till now without a conclusion. Conventionalist schools of thoughts are the outcome of this debate.

Roman writers followed the thoughts of Greeks and introduced a speculative approach to language. They used Greek terminologies with little change.

1.1.3. Traditional Approach to Grammar

Marcus Terentius Varro (116-27BC) codified Latin grammar under the title *De Lingua Latina*. Cicero (106-45BC), Quintilian (1 century 170), Aelius Donatus (4th century AD) etc. wrote about Latin grammar. The Latin grammar influenced the language teaching until the Renaissance. This influence is known as the traditional approach to grammar or prescriptive grammar.

1.1.4. Sanskrit Grammar

Just as the Europeans, Indians also had a systematic linguistic tradition. Panini's Sanskrit grammar was prominent among them. David Crystal says:

The *Astadhyayi* ('Eight books'), dealing mainly with rules of word formation, are composed in such a condensed style that they have required

extensive commentary and a major descriptive tradition has since been established. The work is remarkable for its detailed phonetic descriptions: for example, places of articulation are clearly described, the concept of voicing is introduced, and the influence of sounds on each other in connected speech is recognized (the notion of *sandhi*). Several concepts of modern Linguistics derive from this tradition (407).

1.1.5. Survival of the Fittest

Many languages came into contact with one another due to war, trade and so on. That enriched each language and sometimes destroyed. The Renaissance “revival of learning” enabled the East to have an entry to the Far East. The Chinese linguistic tradition was discovered. The Romance family was preserved. The eighteenth century



Marcus Terentius Varro
(116 BC- 27 BC)

Figure 1.3

witnessed the debate between “rationalists” and “empiricists” over the role of innate ideas in the development of thought and language. Latin had lost its position as a universal medium of communication due to the arrival of English. The relationship between Sanskrit, Greek and Latin was proved with the help of comparative philology in the nineteenth century.

Though modern linguistic theory argues its originality, it is actually a polished version of ancient linguistic studies.



Ferdinand De Saussure
(1857-1913)

Figure 1.4

1.2. Saussurean Influence in Linguistics

The Swiss linguist Ferdinand de Saussure's (1857-1913) principles give the structure of the living languages. Saussure is considered as the father of linguistics. He scientifically analyzed the ways of human thought process by implementing paradigmatic structure to linguistics. Saussure proposed that language should not be understood as a collection of individual words with its own histories

but as a system of systems in which the relationships among the words are structured at a given point in time. Ideas of *Sphota* are reflected in his approach to linguistics (Refer chapter 2.1). He studied language as a system of signs, juxtaposition of signifier and signified and language as a system of systems.

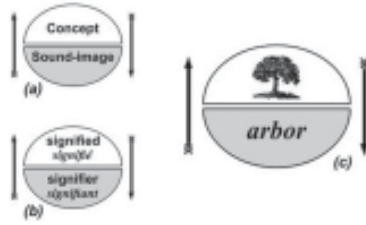


Figure 1.5

1.2.1 Sign

Etymologically the origin of the word ‘sign’ can be traced from the Greek ‘**σῆμα**- semeion’ meaning ‘sign’. According to Chris Baldick, a sign is a basic element of communication, either linguistic or non-linguistic; or anything that can be constructed as having meaning (308). Saussure pointed out the two inseparable aspects of a sign: the **signifier** (See figure 1.5), a sound image or written mark, and the **signified**, the conceptual meaning. The relationship between the signifier and signified is arbitrary. The juxtaposed aspects of the sign are taken from Sanskrit grammar.

1.3. Other Influences on Linguistics

The Saussurean principles Diachrony and Synchrony, langue and parole, signifier and signified and syntagmatic and associative (or paradigmatic) are encapsulated in *Course in General Linguistics* (1916). Franz Boas' (1858-1942) *The Handbook of American Indian Languages* (1911) and Edward Sapir's (1884-1939) *Language* became formative influences on the early development of Linguistics in America. Among the linguists, Avram Noam Chomsky's study of language and mind paved the way to Neurolinguistics and language acquisition. Through his TG Grammar, Chomsky revealed that elementary properties of all languages had an inner structure. These basic properties of languages are unrecognized by a language learner. But the universal structure enables one to learn any foreign language.



Edward Sapir
(1884- 1939)

Figure 1.6

1.4. What is language?

Every creature responds to the external stimuli in different ways according to the situation as they are programmed. Human beings are the only exception from this, because the human brain is not only a programmed system but also it can also generate myriads of programs. Edward Sapir explains language in his work *Language* as a purely human and non-instinctive method of communicating ideas, emotions and desires by means of a system of voluntarily produced symbols. Language origin is still an unanswered question. Sometimes when the gestures failed to convey messages at proper time and pace, verbal symbols substantiated them. It is also proved that there is a common ancestor for all languages. Therefore all verbal expressions in different languages have some common characteristics. Language is an acquired medium for self-expression at the early childhood. Later these acquired sound units of a language are forcefully attributed to certain selected graphemes without any logical relation. Language is an acquired system in which infinite constructions are possible. Boundaries within living and non-living languages are taken away with the help of Information Technology.

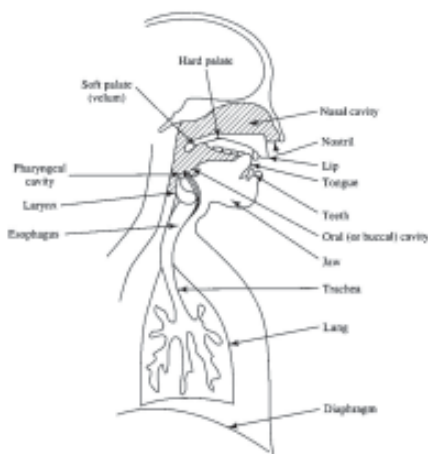
1.5. Phonetics

Phonetics is a scientific analysis of production, transmission and perception of the speech sounds. The air-stream mechanism is the source behind the production of sounds. According to this definition, phonetics can also be called a scientific study of speech at the surface level. These speech sounds are represented within oblique (/ /). Phonetics also deals with the physiological organs involved in speech production (See Figure 1.7).

1.5.1. The Organs of Speech

All organs of speech are compartmentalized into respiratory, phonatory and articulatory systems. These organs of speech produce sounds needed for

language. All organs of speech are given in the table below.



Organs of Speech

Figure 1.7

Respiratory System	Phonatory System	Articulatory System
Lungs	Larynx	The roof of the mouth
The muscles of the chest	Vocal cords	Teeth
Trachea	Glottis	Teeth ridge
	Pharynx	Hard palate
		Soft palate
		Uvula
		The tongue
		The lips
		Nasal cavity

1.5.2. The Classification of Speech Sounds

All speech sounds are classified into vowels and consonants on the basis of the way of utterance. The air-stream will not be blocked during the production of vowels, whereas consonants are produced by closing the oral



Figure 1.8

cavity or nasal cavity. Vowels are produced with a structure of open approximation. There are forty four speech sounds in English (Twenty vowels and twenty four consonants).

Vowels are classified on the basis of the position of the tongue, shape of the lip and the level of the closure of the oral cavity. Cardinal vowels are arranged based on this criterion. Cardinal vowels are selected vowel sounds within which all vowel sounds can be represented. These are a set of reference vowels used by phoneticians in describing the sounds of languages. But consonant sounds are described based on the air-stream mechanism, the state of the glottis, the position of the soft palate, the organs involved in the production of speech sounds and the manner in which it is produced.

1.5.3. Phonology

Chris Baldick defines phonology as the branch of linguistics concerned with the analysis of sound-systems as they function in languages. Phonotactics, syllable and prosodic features (word stress, rhythm, pitch, intonation and so on). It is a branch of linguistics which deals with the systematic organization of sounds in languages.

1.5.4. Morphology

Words are used first with regard to first language. Later the sounds are separated from the word. Therefore

morphology, a branch of linguistics concerned with analyzing the structure of words, plays a vital role in language acquisition. It also deals with how morphemes (The smallest meaningful unit) are conjoined to form new words and how words are transformed.

1.6. Conclusion

The duty of a language researcher is to analyze language and study scientifically its development, arbitrary nature, universality of structural semantics, social significance and so on, and he/she should be able to answer the questions ‘What was language?’, ‘What is language?’ and to give a logical description to the future possibilities. Thus they can make a critical comment on the complex system underlying language learning acquisition about what its users are seldom aware.

1.7. Summary

- a) Culture is the product of the totality of the unique subjective perception of reality and the preservation and transmission of this collective consciousness in the form of the objective reality of a community

- b) Religion preserved and transmitted the undisclosed reality through oral and written languages. Recurring images in all cultures show the validity of the uniqueness of undisclosed reality
- c) Language originated as a product of convention, so that the relationship between words and this is arbitrary. 'For nothing has its name by nature, but only by usage and custom'.
- d) Latin grammar influenced language teaching until the Renaissance.
- e) The relationship between Sanskrit, Greek and Latin was proved with the help of comparative philology in the nineteenth century.
- f) Saussure proposed that language should not be understood as a collection of individual words with its own features but as a system of systems in which the relationships among the words are structured at a given point in time.
- g) All speech sounds are classified into vowels and consonants on the basis of the way of utterance. The air-stream will not be blocked during the production of vowels, whereas consonants are produced by closing the oral cavity or nasal cavity.

Chapter Two

STRUCTURAL SEMANTICS

Contents

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CHAPTER TWO

STRUCTURAL SEMANTICS

The Indian linguistic philosophers could develop their own unique ideas in the realm of semantics. Among these philosophers Panini (4th century BCE) has been considered an important linguist in the development of Sanskrit grammar. In the book entitled *Modern Linguistics an Introduction* S.K. Verma and N. Krishnaswamy give an introduction to Panini:

Panini gives a scientific analysis of the structure of Sanskrit in his *Astadhyayi*. Bloomfield described the grammar of Panini as a monumental work of human intelligence. Patanjali, an early student of the Paninian School, defined the purpose of the *Astadhyayi* as the preservation of the ritual language in its traditional form; the capacity of the generation of forms from one pattern to an other; the sanctity of the grammatical science itself as an integral part of scripture; the economy of description to facilitate memorization; and the clarity of description. Panini wrote a mathematical grammar capable of generating new forms which also accounted for all extant forms and construction in his language (327).

In post Panini tradition Bharthrhari (c. 450—510 C.E.), the author of *Vakyapadiya*, was the important linguistic theorist who tried to develop a theory of semantics. His major contribution to semantics was the theory of Sphota. According to S.K.Verma and N. Krishnaswamy:

This great grammarian-philosopher believed in the transcendental speech-essence (sabda-tatva). The central idea of his philosophy is that the speech-principle has three stages in the course of its manifestation, namely, ‘vaikhari’, ‘madhyama’ and ‘pasyanti’. The first stage is the manifestation of speech (Vaikhari), i.e., the actual sounds uttered by the speaker and heard by the listener. The next stage is the manifestation of the speech principle (madhyama), i.e., the linguistically relevant in a sentence. Pasyanti is the supreme reality of a flash of insight (329).

2.1. What is *Sphota*?

Vakyapadiya is the earliest systematic study on syntax. Bharthrhari explains the major ideas of his concept of “Sphota”, which is one of the basic Indian

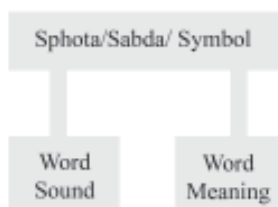


Figure 2.1

thoughts on semantics, in detail in this work. Even many of the modern linguistic theories are just refined forms of Sanskrit theories on language. According to Prof. J. Brough (1917-84) (*Theories of General Linguistics in the Sanskrit Grammarians*) the Sphota is simply the linguistic sign in its aspect of meaning bearer. Bhartrhari's scientific rigour is not only focused on the concept of Sphota but also on the Dhvani too. Though Patanjali talks about Sphota, it is Bhartrhari who develops Sphota theory in an extensive way. He studies words under two aspects as Panini did. Both of them considered Sphota at the phonemic level and as a vehicle (meaning-bearing symbol). Sphota happens in the brain (mind) of the speaker and the listener hears only the acoustic manifestation of the impulses in the brain. Sphota ends soon after its acceleration. What the listener hears is the Dhvani. Therefore each sound plays a vital role in the realm of semantics. The intonation of each sound can suggest meaning variation. It is clear from the Sphota that ultimate meaning is not possible. Because no one except the speaker can trace the pure Sphota.

Sphota theory (*Sphotavada*) belongs to Bhartrhari. But the term Sphota is used in Sanskrit grammar by many grammarians (Patanjali- 2BCE) as a technical term to

denote the origin of the word. Later this term got its meaning expanded to the realm of semantics. Etymologically Sphota is derived from the root *Sphut* (means *to burst*). It studies the semantic level of a word along with its acoustic effect. Yaska, a Sanskrit grammarian who preceded Panini, has also mentioned about this in his *Nirukta*.

2.1.2. Vakyapadiya

Vakyapadiya is a scholarly work written by the early Indian Sanskrit grammarian Bhartrhari. The term Sphota is scientifically studied in this work. As the title of his work suggests, *Vakyapadiya* deals with the study on sentence or a discourse on sentence. The term Sphota used by Patanjali got an academic expansion in Bhartrhari's *Vakyapadiya*. He studies Sphota in three levels. They are *Varna- Sphota* (deals with phonemes), *Pada- Sphota* (deals with morphology in terms of modern linguistics) and *Vakya- Sphota* (Syntax and semantics).



Katyayana was a disciple of Gautama Buddha. In Sanskrit his name is Katyayana or Mahakatyayana

Figure 2.2

He states that these three feature are common to all languages. Studies in Indian linguistic theories show that many western linguists including the father of linguistics Ferdinand de Saussure are influenced by Bhartrhari's linguistic theories. For example the ideas behind Saussurean terms such as "Signifier" and "Signified" are merely a foreign version of *vacaka* and *vacya* division proposed by Katyayana in his Sanskrit linguistic discourse entitled *Vyakarana*.

2.2. Sphota and Meaning

There is a fundamental relationship between sound and meaning (*See figure 2.*)¹. Meaning can be composed from smaller elements. *Vakyapadiya* gives an exceptional interpretation for Sphota:

Sphutati prakasaterthosmadhiti Sphotah

Vacaka iti yavat, Sphotavada (5).

Sphota is that by which meaning is expressed. Sphota is a theory by which the old Sanskrit grammarians studied language. Therefore there are many perceptions on Sphota theory. Bhartrhari discusses some of them in *Vakyapadiya*. K.K. Mishra in his essay entitled "Bhartrhari's Theory of Sphota" explains them coherently.

According to one view, Sphota is the original sound produced by various vocal organs with the

contact of various vocal organs with the contact of various places of articulation. These produced sounds vanish as soon as they are articulated but at once these produce other sounds (echoes) which spread in different directions like the reflections of the original one. Later sounds produced by the *Sphota* are *Dhvani* which spreads like a wave and becomes weak as it goes far from the *Sphota* gradually....*Bhartrhari* has mentioned another theory regarding *Sphota* and *Dhvani*. The *Sphota* and the *Dhvani* are produced simultaneously. *Bhartrhari* has mentioned a third view according to which the *Sphota* is the class (*Jati*) revealed by various individual instances and *Dhvani* its member (2, 3).

2.3. The Three Stages of *Sphota*

The external and internal levels of *Sphota* are explained well by him. According to NVP Unithiri, *Bhartrhari* gives the nature of a sign and its divisions. For him each word is to exist (sound) and also able to make the existence of other (meaning) as the light does. This double capacity of a sign is explained by *Bhartrhari* in *Vakyapadiya* thus:

Atmarupam yatha jnane
Jneyarupam ca drsyate/

Artharupam tatha sabde

Svarupam ca prakasate// (1, 50).

According to K.K. Mishra Indian grammarians have analyzed speech situations and classified these into four categories namely Para, Pasyanti, Madhyama and Vaikhari. But Bhartrhari encapsulates these classifications into three divisions such as vaikhari, madhyama and pasyanti. Ordinary people do not realize *Para*. Therefore, the analysis of the three classifications mentioned above is important to get an apt clarification of what Bhartrhari meant by the Sphota theory.



Figure 2.3

2.3.1. Vaikhari

Vaikhari deals with the individual instances of the production of speech sounds. The utterances are perceivable to both the speaker and the listener. Subjective utterances are its main specialties. The production pattern of each speech sound is given more importance. Meaning is not generated here or dealt here. These un-contextual utterances make no meaning. But when these un-contextual productions of sounds are structured by placing

opposition (vowels and consonants) in a context, these structural units of sounds start to generate meaning.

2.3.2 Madhyama

Madhyama is the level of Dhvani in which the phonological structure produces meaning the former is known as *vaikhari* Dhvani and the latter is known as *Prakṛta Dhvani*. It is the linguistic pattern within the mind of a producer and a receiver who are in a same linguistic context or environment. Therefore all subjective variations get regulated at this level. According to *Sphota* theory it is accepted as expressive of *Sphota*. K.K. Mishra uses lines from *Vakyapadiya* in his essay “Bhartrhari’s Theory of *Sphota*”.

Vaikharya hi krto nadah parasravanagocarah
Madhyamaya krto nadah Sphotavyanjaka ucyate (2).

Though there are multifarious utterances these sounds will not express *Sphota* until they get meaning. *Sphota* is a permanent semantic entity. According to K.K. Mishra:

Sphota is integral and meaning-bearing aspect of the language. Bhartrhari has accepted this form of speech as most important and mentioned it as *Sabdabrahma* in his opening verse of *Vakyapadiya* (1, 1)....This *madhyama* form of

speech is to be realized by all the speakers of a language. Though the *Sphota* is regarded as one and indivisible but it is classified on the basis of expressive sounds as *vakya Sphota*, *Pada Sphota* etc. This *madhyama vak* is sometimes expressed even without *vaikhari Dhvani* e.g., when somebody is reading silently there is not active use of *vaikhari* speech but with the help of script, *madhyama vak* is revealed which expresses the meaning bearing *Sphota* (5, 6).

2.3.3. Pasyanti

Pasyanti is the third classification of *Sphota*. It generates meaning as *Madhyama Dhvani* does. But according to Bhartrhari these meanings cannot be realized by people except *Yogins*. His linguistic analysis gives variety of *Sphota* which generates meaning. Ferdinand de Saussure's linguistic theories on sign are also similar to Indian philosophies on *Sabda* and *artha*. But Bhartrhari gives a metaphysical realm to the school of Linguistics in which words are considered as physical entities which are manifested through proper utterances./*Sabdopi buddhistah srutinam karanam prthak/* (1, 46). A.H. Gardiner in his work *The Theory of Speech and Language* explains the physical nature of words.

As words exist in the possession of every individual (of a linguistic community), they are psychical entities, comprising on the one hand an area of meaning and on the other hand the image of a particular sound susceptible of being physically reproduced whenever wanted (70).

2.4. Levels of Meaning‘

As mentioned above Bhartrhari’s *Sphota theory* is not only a theory of the origin of a meaningful utterance but also it deals with the problem of generating multiple levels of meaning. *Abhidha*, *Laksana* and *Vyanjana* divisions are also taken into consideration. These features of words are to be analyzed with the support of Neurolinguistics that Indian grammatical theories open its vista towards the modern neuro studies too. It is clear from the studies that the generation of meaning is connected to contextual factors and the analyzing capacity of the receiver. Each and every unit of facing utterances (voiced and voiceless) are given particular perceptions within where that language is spoken and when these utterances become subjective they get more colours of signification. It is how words get meaning. When these words are arranged one after another, a sentence gets meaning. The meaning of a sentence will change

according to changes in intonation and syntax. This feature of *Sphota* is explained in the academic thesis entitled *Studies in Linguistics-Bhartrhari's Sphota Theory: an Exploration in Semantics, Linguistics and Cross-cultural Problems of Translation* by Ravi Sheorey.

The *Sphota* is revealed in stages by each succeeding sound, but by itself it is indivisible and not to be represented as capable of splitting into successive sound segments. It is comprehended in a process which *begins* with complete ignorance, passes through partial understanding and ends in complete knowledge (dyana) (7/20).

2.4.1. How is meaning generated?

Bhartrhari denies the fixed existence of the meaning of a word. This non-reality of words can be explained with an example. If one person does not know the meaning of the word “Table”, he will not understand the sentence’s meaning “Bring one table”. By this Bhartrhari states the relevance of one to one correspondence. Sometimes the context where the listener is placed provides some hints by the way of gestures. But this is not possible always. He proves the plurality of word’s meaning according to the contexts. Therefore for him the duty of the grammarian is to define these structural

changes, which cause the variation in semantics. Sphota theory always focuses on the flux of semantics. In *Vakyapadiya* he tries to prove this fundamental truth that the meaning of a word depends on the intention of the speaker to convey the so called meaning. Ravi Sheorey explains the change of meaning by an analogy.

The human eye has the natural power of seeing many things at a time, but it can see a particular object only when the individual decides and focuses his attention to see that object. The process of understanding the particular meaning of a word has three aspects: first, a word has an intrinsic power to convey once or more meaning (*Abhita*); second, it is the intention of the speaker which determines the particular meaning to be conveyed (*abhisamdhana*); and third, the actual application (*viniyoga*) of the word and its utterance....Bhartrhari also speaks about the distinction between the explicit (*mukya*) and implicit (*nantariyaka*) meaning of words. When we cannot see an object in the dark, we light a lamp to see it. The lamp illuminates not only the desired object but also the other objects lying nearby. The main object here represents the explicit meaning of a word, and the other objects

around or the other details of the object (e.g., its colour or engraving, etc.) represent implicit meaning. A word may also bring to one's mind certain associated meanings, which Bhartrhari compares to fuel that, when lighted gives not only fire but smoke as well (9, 10).

2.4.2. Structural Semantics

Structural semantics is a logical study to find out the relationship between words within a sentence and to find how meaning is generated through structure. Structuralism revolutionized the importance of the structure of a sentence and stated that structure had a vital role in semantics.

2.5. Conclusion

It is clear from the above description that meaning is generated only with the association of notions. *Samsarga* (contact), *samyoga* (association), *Viprayoga* (dissociation) *Sahacaya* (companionship), *Virodhita* (opposition), *Artha* (sense), *Prakarna* – (the context of situation), *Linga* (indication), *Sabdasyanyasya samnidhih* (the vicinity of another word), *Samarthayam* (the capacity that is known from the result) *Auciti* (propriety or congruity), *Desa* (place), *Kala* (Time), *Vyakti* (grammatical gender), *svara* (accent) etc. are some of the tools

propounded by Bhartrhari to demonstrate the changing nature of the meanings of words as well as sentences. His linguistic theories transcend space and time. His linguistic philosophy projects the vitality of psycholinguistics. His theories of language are reflected in modern Linguistics.

2.6. Summary

- a) The Indian linguistic philosophers could develop their own unique ideas in the realm of semantics.
- b) Sphota is simply the linguistic sign in its aspect of meaning bearer.
- c) Vaikhari deals with the individual instances of the production of speech sounds.
- d) *Madhyama* is the level of Dhvani in which the phonological structure produces meaning.
- e) *Pasyanti* cannot be realized by people except *Yogins*.
- f) The meaning of a sentence will change according to changes in intonation and syntax.

Chapter Three**UNIVERSAL STRUCTURE****Contents**

- 3.1. Phrase Structure Grammar (PSG)
 - 3.1.1. Merits of PSG
 - 3.1.2. Demerits of PSG
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- 3.3. Chomsky and Structural Semantics
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CHAPTER THREE

UNIVERSAL STRUCTURE

It is found in Bhartrhari's Theory of Sphota that there is a universal structure in the manner of production and reception of speech sounds and this universality is the base of every language. In this chapter the structural features of languages are analyzed in order to come up with its universal structure in the realm of production, reception and cognition. Therefore, samples from the prominent language families are scrutinized under Transformative Generative Grammar in order to manifest the existence of universal structure. This chapter will elucidate the uniqueness of the structure of all languages in the realm of acquisition and



Avram Noam Chomsky
(1928-)

Chomsky, who has taught at the Massachusetts Institute of Technology since 1955, developed a theory of transformational (sometimes called generative or transformational-generative) grammar that revolutionized the scientific study of language. He first set out his abstract analysis of language in his doctoral dissertation (1955) and *Syntactic Structures* (1957). Instead of starting with minimal sounds, as the structural linguists had done, Chomsky began with the rudimentary or primitive sentence; from this base he developed his argument that innumerable syntactic combinations can be generated by means of a complex series of rules. (<http://www.chomsky.info>)

Figure 3.1

meaning generation. Generative grammar is developed by Avram Noam Chomsky (1928), Professor of Linguistics at the Massachusetts Institute of Technology. His work entitled *Syntactic Structures* which was published in 1957 is the Bible of generative grammar. He also tries to give the different phases of sentence structures. One of the aims of his theory is to analyze sentences from their root level. Chomsky turns his focus to competence and performance to achieve this aim. According to David Crystal:

Speakers use their competence to go far beyond the limitations of any corpus, by being able to create and recognize novel sentences, and to identify performance errors....Chomsky's proposals were intended to discover the mental realities underlying the way people use language: competence is seen as an aspect of our general psychological capacity (413).

3.1. Phrase Structure Grammar (PSG)

Chomsky developed the rewritten rules [PS] and gave birth to Transformative Generative Grammar. According to PS analysis all sentences can be analyzed or rewritten under the following formula i.e.

$$S \rightarrow NP + VP$$

Here ‘S’ stands for sentence and NP and VP are for nodes which stand for ‘Noun Phrase’ and ‘Verb Phrase’ respectively. Many attributes are added to NP and VP to make the sentence more descriptive and complex. The application of attributes is variable according to the shift from one language to another. Even though there are such variations the realms of the placements of the attributes all languages follow a universal method in language production and acquisition.

Here is given an analysis according to PS rules (See figure 3.2).

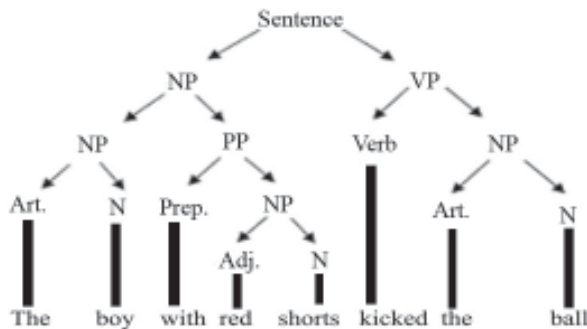


Figure 3.2

The following figures show the defect of P structure in analyzing agglutinative languages like Malayalam, Syriac and so on. Here two languages (Malayalam and English) are studied.

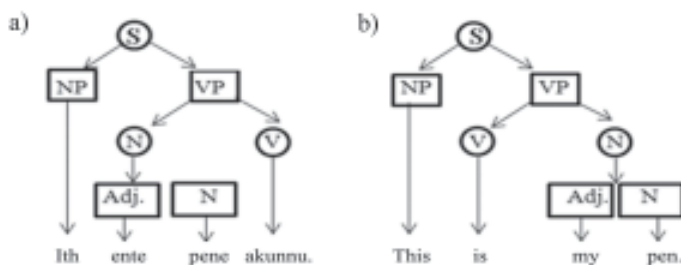


Figure 3.3

In the above examples three functions of a verb (to denote an action, state and possession) are explained with the help of PS rule. But it may not be useful to find out the universal nature of structural semantics in language acquisition. Because in one language affixes are placed at the end of the words (refer figure 3.3.b) or sentence in order to change the nature of an expression whereas other languages may not follow this order/structure. These variations in the structure may lead to semantic changes. Therefore a second language learner needs a long time to get into a second language. No language can be translated to another properly. Every translation is an interpretation.

Therefore PS analysis does not give us the universal nature of structural semantics in language acquisition. But there we can find a unique structure that every sentence is made of an NP and VP.

3.1.1. Merits of PSG

PS grammar was developed by Noam Chomsky when Immediate Constituent Analysis (IC analysis was introduced by Bloom Field and systematized by Roulon Wells and Zelling Harris) became a failure. PSG is an improved form of IC to analyze the sentence structure. Sentence is analyzed with the help of rewrite rules and depicted with the help of Phrase Makers (P-Makers). The following are the base of rewrite rules. They are

- 1) $S \rightarrow NP + VP$
- 2) $NP \rightarrow Det. + N$
- 3) $VP \rightarrow V + NP$

PSG is a process of applying the rewrite rules to study the structure of sentence.

3.1.2. Demerits of PSG

The modified form of IC (PSG) has failed in finding the relationship of words within sentences and in

demonstrating the transformation of sentences. It is not sufficient to explain complex compound words, phrasal verbs and complex sentences. PSG has also failed in explain the meaning generation.

3.2 Demerits of Structural Linguistics

Most of the European scholars are interested in ancient languages like Greek and Latin and the developed modern European languages from them. Apart from the ancient grammarians Noam Chomsky tried to describe the universal nature of languages by using TG grammar as if Bhartrhari did with his Sphota Theory. Chomskian theories questioned some of the basic principles of the American Descriptive Linguistics or Structural Linguistics. Some of the basic principles of these schools are encapsulated by S.K. Verma and N. Krishnaswamy.

- (a) Language is social behavior and the subject matter of Linguistics is the study of the total set of habits and patterns.
- (b) Analysis and description must confirm the requirements lay down by a scientific discovery procedure.
- (c) Each language is ‘suigeneris’ and hence must be described in terms of its own systems and

sub-systems. No two languages are alike.
There is no universal grammar.

- (d) A language is an arbitrary system of articulated sounds made use of by a group of human beings as a means of communication.
- (e) There is no such thing as a ‘natural language, in the sense that it is dictated by nature.... These principles were not challenge of till the 1950s (141, 142).

3.3 Chomsky and Structural Semantics

Noam Chomsky through his books *Syntactic Structures* (1957) and *The Logical structure of Linguistic Theory* (1955) presented his views on structural semantics. He questioned some of the notions of American Descriptive Linguistics. Many of Chomskian ideas are similar to Sphota theory. According to Chomsky there is a mental reality behind actual linguistic behavior and the inner reality is vital for the analysis of the words uttered. The universal linguistic structure is programmed within a language user soon after she/he becomes the part of a community and this constitutes an innate property of the mind. Like *Vaikhari* and *Madhyama* in Sphota theory Chomsky also gives *competence* and *performance* to linguistic descriptions to answer the hypothetical doubts

regarding the generation and synthesis of sentences and its meaning. Therefore, for Chomsky the mere classification of surface output does not give the actual principles and methods of sentence construction.

3.4 Chomskian Interpretation of Grammar

S.K. Verma and N. Krishnaswamy say how Chomsky defines grammar.

A grammar is a finite system of rules (i.e., significant generalizations) which generated and describes an infinite number of all and only possible sentences in a language...Grammar is 'generative', in the sense that the output is not the same as the input and it is formalized. In any generative process the output is not exactly the same as the input. In the other words, from a fairly limited number of utterances seen and heard, the learner selects some (depending on his or her growth and maturity), and abstracts some information and internalize it; the internalized system of rules is used in the production of utterances (140).

3.5. Chomsky and Bhartrhari

Chomsky's theories are the attempts to prove the universal nature of language. Bhartrhari's Theory of

Sphota is also the same. Both these two theories show that the grammar is generative. All verbal expressions are the regulated expressions of internal reality. Therefore a set of syntactic, semantic and phonological rules are to be learned to learn a language. It is necessary to apply supra segmental features to analyze a sentence or word groups. For Chomsky as if Bhartrhari each sentence is produced from a kernel sentence. Chomsky divides the relationship between the actual sentence and a kernel sentence. These divisions are entitled as surface structure and deep structure. The deep structure is the innate linguistic structure and the surface structure is its irregularities. The theory of Sphota also gives the same. Chomsky uses TG Grammar to depict the relationship between deep structure and surface structure and describes them by using T-rules (Transformation Rules). The net result of these transformations is the phonetic expression and its semantic representation which lead to the cognition of the language. According to Sphota theory a surface representation is not the actual pronouncement. In other words, an abstract entity (sentence) is represented through the concrete expressions.

3.6. Transformational Generative Grammar

Chomsky is the person who developed Transformative Generative Grammar to analyze the

relationship between deep structure surface structures. The TG grammar also tries to answer how meaning is possible.

3.6.1. What is TG?

TG grammar deals with the relationship between sentences and the transformation of sentences. According to TG grammar sentences are transformed from a Kernel Sentences (Kernel Sentences are simple, positive and assertive sentences) and all sentences are generative in nature. TG grammar explains the theory of competency.

3.6.2. Advantages of TG

TG Grammar deals with how a string changes to another and explains this transformation with T-rules (Transformation Rules). It is a logical approach to demonstrate the relationship of sentences in a language. In order to show this PS rules, P-makers and T- rules are used. It is an attempt to come up with the scientific explanation of competence.

3.7. Conclusion

S.D. Krashen, a Linguist, in his academic publication entitled *Second Language Acquisition and Second Language Learning* (1981 Pergamon) describes that a native speaker with inbuilt grammar can make

infinite expressions and can describe those expressions. Chomsky describes this notion in *Syntactic Structures* as:

The most striking aspect of linguistic competence is what we may call the “creativity of language”, that is, the speaker’s ability to produce new sentences, sentences that are immediately understood by other speakers although they bear no physical resemblance to sentences which are familiar...The person who has acquired knowledge of a language has internalized a system of rules that relate sound and meaning in a particular way. The linguist constructing a grammar of a language is in effect proposing a hypothesis concerning this internalized system (26).

These internal rules and their manifestations are represented with the help of PS by Chomsky. For him the syntax of a language should have two parts: a phrase-structure component (e.g. $S \rightarrow NP + VP$) and a transformational component. He explains all these transformations by using T-rules. This method is used here to analyze the samples of Malayalam, English and Syriac.

It is clear from the *figures 3. 2 and 3.3* that each sentence in these languages contains NP and a VP and

each one of these languages becomes different according to the expansion of these two basic elements of sentences. A few samples are examined here.

It is clear from the P-structure (Figure 3.4. a, b and c) that all the samples contain the same structure where NP and VP are distributed according to their style. But when these samples are analyzed in a microscopic way, there lies a difference. The samples (3.4. b and c) are agglutinative types whereas the sample (3.4.a) is not. Because sometimes the adjectives, proposition, tense change etc. are assimilated to the root. For example in the sample (3.4. c) *Emmar* means “He said”. That is, that word itself is a meaningful sentence and the next word shows the name of the person. EVN Nambutiri in his *Vakyakhatana* states that the structure of the word shows to which gender and number the subject belongs to. Each sample shows that language is the expansion of the verb (which denotes an action, state and possession). But this problem will be solved by the application of TG grammar and its representation, where deep structure, surface structure and phonetic representation are described. This is the level in which the similarities of Eastern and Western linguistic theories are combined to give emphasis to Neurolinguistics, where universality of structural semantics in language acquisition is found.

According to V.Syamala Chomsky stated the universal nature of all languages by introducing TG grammar. The considerable comparability between the core semantic relations of a sentences and its acquisition are common to all languages. Chomsky describes his mathematical approach to linguistic and grammatical theory in *Aspects of the Theory of Syntax*:

But the fundamental reason for [the] inadequacy of traditional grammars is a more technical one. Although it was well understood that linguistic processes are in same sense “creative” the technical devices for expressing a system of recursive processes were simply not available until much more recently. In fact, a real understanding of how a language can (in Humboldt’s words) “Make infinite use of finite means” has developed only within the last three years, in the course of studies in the foundations of mathematics (30).

His study on language acquisition leads to the same conclusion that there is an innate grammar in all people. Through his TG Grammar Chomsky revealed that the elementary properties of all languages had an inner structure.

3.8. Summary

- a) Language is social behavior and the subject matter of Linguistics is the study of the total set of habits and patterns.
- b) A grammar is a finite system of rules (i.e., significant generalizations) which generates and describes an infinite number of all and only possible sentences in a language
- c) The most striking aspect of linguistic competence is what we may call the “creativity of language”
- d) There is an innate grammar in all people. Through his TG Grammar Chomsky revealed that elementary properties of all languages had an inner structure.

Chapter Four

**LANGUAGE ACQUISITION AND
NEUROLINGUISTICS**

Contents

- 4.1. Neurolinguistics
- 4.2. Brain and Language
- 4.3. Conclusion
- 4.4. Summary

CHAPTER FOUR

LANGUAGE ACQUISITION AND
NEUROLINGUISTICS

All theories regarding language acquisition and meaning generation analyze the spoken or written form of language to study how language is acquired and meaning is generated. Bhartrhari and Chomsky could reach the psycholinguistic realm of language. Apart from those Eastern and Western linguistic theories, Neurolinguistics offers a developmental theory of language and the neural system, which is the source behind all linguistics capabilities. Neuro-linguistic deals with the biological factors behind language learning, where all languages are given a universal nature in the realm of language acquisition. It is the study of the neural mechanisms in the human brain that control the



Henry Hecaen
(1912–1983)

The contemporary identity of neuropsychology was in many ways shaped by the work of Henry Hecaen. Hecaen moved away from his initial interest in psychiatry, and became increasingly involved in the study of neurology, under the mentorship of Jean Lhermitte. Hecaen managed to harness the opportunities available to him to become one of the most influential and essential individuals in the establishment of neuropsychology as a distinct discipline.
www.springer.com

Figure 4.1

language production and acquisition. It studies the relationship between language and brain. The term ‘Neuro-Linguistics’ was firstly used by a French neurologist Henry Hecaen in the late 1960s.

4.1. Neurolinguistics

Zoltan Dorneyi gives an introduction to Neurolinguistics in his book entitled *The Psychology of Second Language Acquisition*.

Neurolinguistics shares similar objectives with cognitive Linguistics but draws on neuropsychology rather than cognitive psychology as the main source of psychological knowledge....The term ‘Neurolinguistics’ was first used by French neurologist Henry Hecaen in the late 1960s, to denote the discipline that was to bridge a gap between the neurosciences (neurology, neuro-anatomy, neurophysiology and neurochemistry) and human communication (Linguistics and psycholinguistics). Originally, the main emphasis of the field was on studying verbal deficits resulting from cortical lesions and thereof Neurolinguistics was initially closely associated with language pathology (6).

4.2 Brain and Language

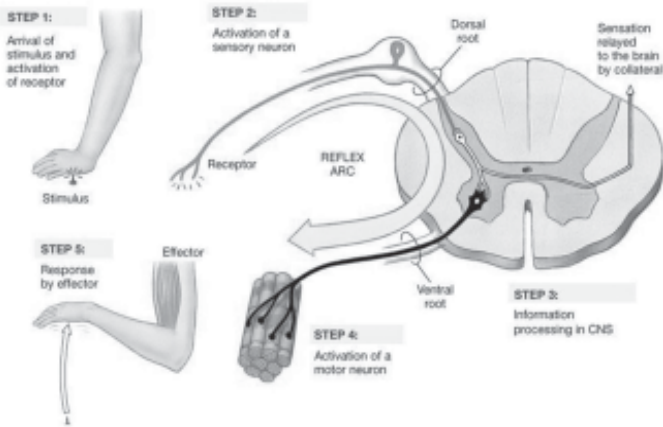


Figure 4.2

But later the focus of this new field was shifted to find out the relationship between language and brain. If the human brain were simple enough for the researchers to understand, they would be too simple-minded to understand it. For convenience, it is necessary to have a basic awareness of the human brain to find out the relationship between language and brain. The anatomical structures and functional mechanism permit language acquisition. The nervous system provides this capability. All data from outside (input) function as stimuli.

All these external stimuli (Reflected reality) or input including visual, olfactory, gustatory, auditory and

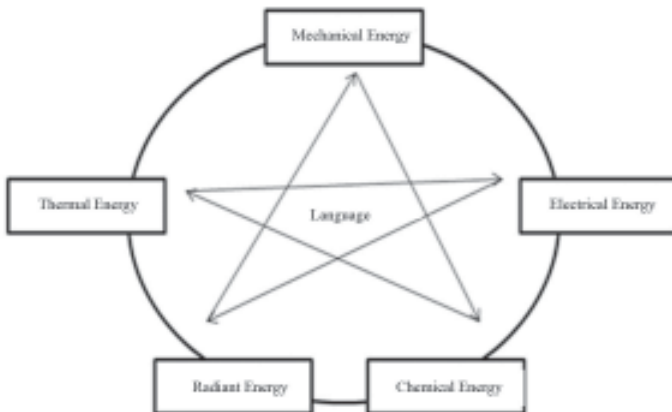
tactile are converted to neuro impulses (transformed reflected reality) (Refer figure 4.2) and these transformed reflected realities are analyzed within the brain. These inputs are converted within the receptors (eyes, nose, ear etc.). Nervous signals travel rapidly from the receptors to the brain and vice versa. These neuro impulses are produced due to chemical changes, within the receptors or in the brain. Each and every input trigger a kind of chemical change and these become neuro impulses. These electrical potentials are a fundamental physiological currency. It is described in *Principle of Animal Physiology* by Christopher D. Moyes and Patricia M. Schulte:

Just as we use electricity to power many of the machines we use in our daily if lives, animals also use electricity to power cellular activities. Cells establish a charge difference across biological membranes by moving ions and molecules to create ion and electrical gradients across membranes. All cells and many organelles within cells rely on this potential difference, or membrane potential, to drive processes that are needed for survival. Animals also use changes in electrical potentials to send signals within and between cells, helping to coordinate the complex processes of the body. Muscles and neurons, two

4.2 Brain and Language

cell types that are found only in animals, we changes in membrane potential to send signals (44- 45).

It is clear from the above description that electrical theory has played an important role in the realm of the Central Nervous System (CNS), Peripheral Nervous System (PNS) and the movement of muscles. Not only electrical potentials but also temperature affects physiological processes. The rate of chemical reactions changes according to temperature variations. All inputs have the capacity to influence biochemical and physiological patterns in an active or passive manner. All



Chemistry of Life in Principles of Animal Physiology, Chapter 2, p.55

Figure 4.3

inputs are received according to its need and function concerning human body as well as animals. Food, water, light and air are some of the basic essentials of animals. There is a pattern through which these things are received and are transformed into smaller units.

Each body will reject what is unnecessary. But apart from these inputs, language (consider it as an input or reflected reality) has a special nature. That is, language affects the brain and it will be recorded in the form of chemical compounds and neuro impulses. Human brain is a programmed and self programming system. Compared to human brain other animals' brain systems are simple programmed systems whereas human brain makes simple to complex. The relevance of Neurolinguistics begins from this point to analyze the science of language. Language enables its users to remodel their physiological and psychological machinery in response to external conditions. The vitality of children's literature and religious texts is revealed here. Language includes both potential and kinetic energy forms. All biological processes involve combinations of Radiant, Mechanical, Electrical, Thermal and Chemical forms of energy. Because organisms can transfer one form of energy into another, and language (combination of all senses'

4.2 Brain and Language

experience and their verbal expression) can trigger all these energy forms. That is the reason why if somebody says something to us we will respond either positively or negatively.

As it is stated brain is behind all verbal and non verbal productions. Therefore it is necessary to have a microscopic search to come up with the result of the quest to find out the universality of language acquisition.

Communication happens through signals in the form of sounds, scents and visual cues. All these outputs are the transformed amplified chemical and electrical signals within the brain. According to Christopher D. Moyes:

All every level of organization, life depends on communication. Animals send signals in the form of sounds, scents and visual cues. Within an organism, the organs, tissues and cells communicate with each other using chemical and electrical signals. Even within a single cell there is constant communication of information among organelles. Every organ, tissue, cell or organelle in a multi cellular organism must stay in constant communication so that the organism can function as an integrated whole (138).

Brain is a complex system made of neurons and other chemical compounds. This complex nervous system is divided into two: CNS and PNS. It is a very complex communication network that allows an organism to interact in appropriate ways with its environment (both external and internal) (Robert M. Berne). It allows a body to respond to the external stimuli. Neural circuits make these responses possible. CNS and PNS are described well in *Physiology* by Robert M. Berne and Matthew N. Levy:

The peripheral nervous system (PNS) provides an interface between the central nervous system and the environment. It includes sensory components formed by sensory receptors and primary afferent neurons and motor components

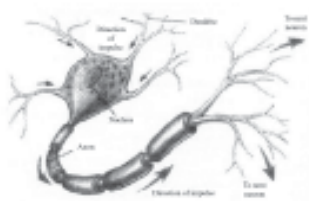


Figure 4.4

formed by somatic and autonomic motor neurons (93). The central nervous system (CNS), among other functions, gathers information about the environment from the PNS, processes this information and

perceives part of it, organizes reflex and other behavioral responses, is responsible for cognition, learning and memory, and plans and executes voluntary movements (94).

4.2 Brain and Language

Sensory detection, information processing and behavior are some of the basic functions of the nervous system. When these functions are connected to Linguistics, language acquisition and its preservation (memory) are some other forms of the information processing which allow behavior to change according to the variation of the matrix.

Information processing is a neural communication system through which neural circuits are interconnected. Axons play a vital role in the transformation of information. The information conveyed by axons may be encoded in several ways. According to Robert M. Berne and Mathew N. Levy

A labeled line is a set of neurons dedicated to a general function, such as particular sensory modality. For example, the visual pathway includes neurons in the retina, the lateral geniculate nucleus of the thalamus, and the visual areas of the cerebral cortex. A second way in which information is encoded by the nervous system is through neural maps. A somato topic map is formed by arrays of neurons in the sensory or motor system that (1) receives information from corresponding locations on the body surface

or (2) issue motor commands to move particular parts of the body. In the visual system, points on the retina are represented by neuronal arrays that form retinotopic maps. In the auditory system the frequency of sounds is represented in tonotopic maps.

A third method for encoding information is by patterns of nervous impulses...

(The nervous system and its components.103)

According to Anne Waguh and Allison Grant sensory receptors provide information to CNS about its external and internal environment. The information is received in the CNS by trains of nerve impulses, which is the result of the excitation caused by stimulus. All these stimuli are generated by special sensory systems, which include the visual, auditory, vestibular, olfactory and gustatory systems. These special sensory systems are in all living beings to behave according to the signals in the matrix. Proper language acquisition includes the compiled encoding of these external reflected realities, decoding of the transformed reflected realities and the response of to these external stimuli. Proper meaning is generated only when a proper co-ordination of CNS and PNS happens. When all these facts connect with language acquisition it

4.3 Conclusion

is obvious that there is a universal structure in language acquisition in the realm of physiology as well as psychology.

4.3. Conclusion

Language acquisition *begins* when fetus starts to respond to the external stimuli. Majority of these external stimuli include audio excitations (Excitability is a cellular property of neurons involving electrical signals that enable them to receive and transmit information.) Sensory detection is the process whereby neurons transduce environmental energy into neural signals. Sensory detection is accomplished by special neurons called sensory receptors. Various forms of energy can be sensed, including mechanical forces, light, sound chemicals, temperature, and in some animals electrical fields.). That is, if a child is going to be born in a place where English is the mother tongue the child will already have an experience of the structured matrix before its birth. Later when the child grows, he/she starts to respond to the reflected realities as natural. The immature organs of speech do not allow the child to reproduce the sounds he/she hears around. Later their experiences of actions, states and possessions are learned by the child how these excitations are defined by the parents and society to him/

her. And in the case of second language acquisition, an act of paralleling and equalization are happening. For example the word “man” is translated to Syriac as *Gavra*. The whole specialty of the word “man” (in the realm of Meaning) is equalized in the word “man”. But for a native speaker its meaning is entirely different. Therefore second language acquisition is a process in which the entire brain takes part as if of the first language.

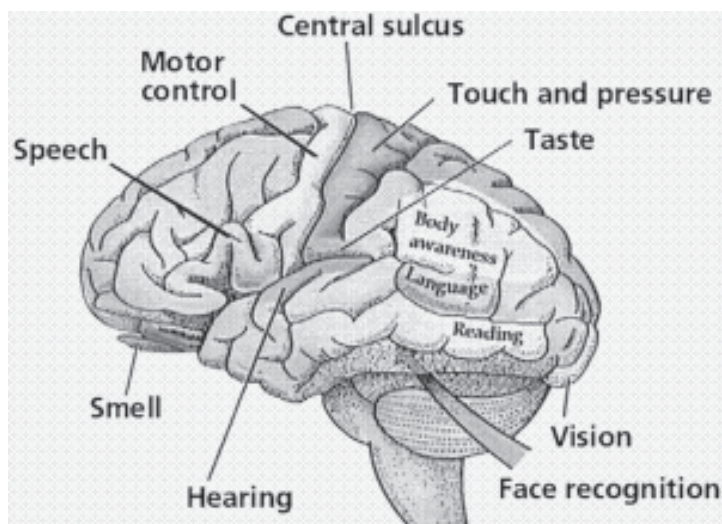


Figure 4.5

4.4 Summary

4.4. Summary

- a) Communication happens through signals in the form of sounds, scents and visual cues.
- b) Sensory receptors provide information to CNS about its external and internal environment.
- c) Proper meaning is generated only when a proper co-ordination of CNS and PNS happens.
- d) Excitability is a cellular property of neurons involving electrical signals that enable them to receive and transmit information.

Chapter Five

EXPANSIVE GRAMMAR

Contents

- 5.1. What is Expansive Grammar?
 - 5.1.1. Grammaticalization
 - 5.1.2. ENSYGLOGE
 - 5.1.3 Meaning Generation in the Brain
- 5.2. How do Utterances Become Meaningful?
- 5.3. Expansive Grammar
- 5.4. Conclusion

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CHAPTER FIVE

EXPANSIVE GRAMMAR

Language acquisition is a process where all senses come together to describe a reflected reality. The main question addressed by this book is whether there is universality in structural semantics in the realm of language acquisition. Semantics and syntax are interrelated, that is, a change in syntax causes a change in meaning. Therefore both these faculties are universal properties of languages, even at the single word level. A word derives its meaningful existence by being meaningful. That is, it gets meaning only when a thing (which does an action, which is in a state or with possession) is referred by it and the referred thing gets its identity only when other referred things get their existence. All these understandings are not happening outside the brain, but inside it. In *The Cambridge Dictionary of Philosophy* Robert Audi gives an introduction to the philosophy of language.

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Theories of meaning can also be called semantics, as in “Grecian Semantics” though the term is sometimes restricted to referential and/or truth-conditional theories, which posit

meaning-constitutive relations between words and non-linguistic world. Semantics is often contrasted with syntax (The structure of grammaticality). Permissible ordering relations between words and other words in well-formed sentences, and with pragmatics, the rules governing the use of meaningful expression in particular speech contexts; but linguists have found that semantic phenomenon cannot be kept purely separate either from syntactic or from pragmatic of phenomena. In a still more specialized usage, linguistic semantics is the detailed study (Typically within the truth-conditional format) of particular types of construction in particular natural language (674).

Syntax and semantics are highly correlated in all languages. Meaning is generated only when the reflected realities take involvement in the distributed networks of neuro impulses. The generation of meaning is based on how these multifarious reflected realities are conjoined to form knowledge. In a practical sense language is used as a medium through which an action, state and possession of living and no-living things are conveyed to generate the same sense or experience in the listener. Tense defines at what time these kinds of action take place. This is the

general nature of all languages. The term “Universal Structure” here means the underlying universal nature of the structure of all tongues. In *Semantic Memory and the Brain: Structure and Processes* Chao LL Martin describes the relationship between structure and syntax.

In order to establish whether semantics and grammatical class are independent organizational principles of linguistic knowledge in the brain, these potential confounds must be removed. In the present study we minimized systematic semantic-grammatical confounds by using verbs and nouns referring only to events. This represents a departure from previous studies contrasting action-verbs to object-nouns. To examine modality-related semantic effects across grammatical classes of verbs and nouns, we used words referring to motion events and words referring to sensation events whereas a wealth of studies have investigated modality- related effects for objects (194).

5.1. What is Expansive Grammar?

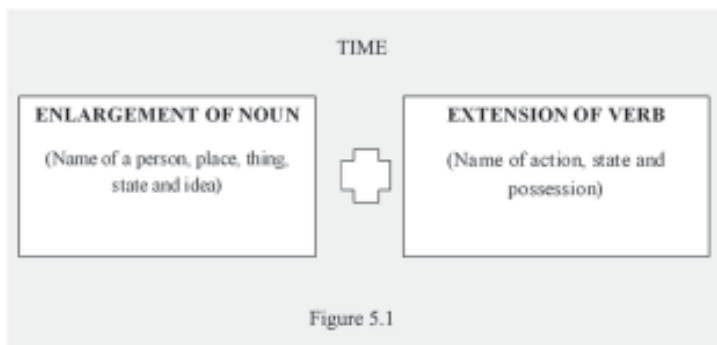
Structural semantics has shown that the comprehension and production of even the simplest and most commonplace language is a highly complex, almost

miraculous process. The analysis of the surface structure proves that the general internalized rules are the same for all languages. That is, a sentence consists of a noun and a name of an action, state (being) or possession. The expansion of a sentence from simple to complex is by enlarging the noun and extending the verb. Varieties of constructions are also formed by the same process. For example, the question “What is your name?” comes from the internal quest of the speaker to complete the sentence. “Your name is.....” No language is given exception from this general rule. The phonemic representations are different from one language to another. Therefore the proper verification of meaning is not possible. One utterance will be changed slightly from the original meaning when it is generated by conjoining different attributes. Language is not enough to convey the proper meaning. Meaning is expressed through the expansion of limited rules (perceptions). Therefore, no objective analysis is possible for the realm of meaning, but structure can be analyzed objectively. For example:

- (a) “Rama killed a snake”
- (b) “Raman pampine konnu”

Here the structure of the sentences (a) and (b) can be analyzed objectively to come up with unique structure

where noun and verb are expanded. But supra segmental features change the nature and kind of these sentences. Structural changes also affect the meaning of the sentences. The distance between the speaker and the listener also affects meaning. The basic structure of all languages can be represented in the following figure.



The expansion of both these elements causes the generation and transformation of different kinds of sentences (Assertive/Declarative, Interrogative, Imperative and Exclamatory sentences). The name can be that of a person, place, thing, idea etc. 'Name of action/state/possession' means "an action which is done by the subject of the sentence, state of the subject and possession of the subject".

5.1.1. Grammaticalization

A sentence gets developed by enlarging the noun and expanding the verb within it. Qualifiers are used to qualify noun and modifiers are used to modify verb in accordance with their number, manner, frequency, place, negation, interrogation, quantity and so on. Sometimes different sentences or phrases are joined to convey a particular meaning and often limited syntax becomes ambiguous (increasing the suggestive power of the sentence). The spaces within the syntax are created by the process of limitation. Such individual changes within a construction ultimately lead to a restructuring of the meaning. Michael Swan in his book *Grammar* describes this process of “grammaticalization”.

Much of grammar starts out from lexis. Where new grammatical elements are needed, either to fill developing gaps arising from phonetic erosion, or to increase the expressive power of the language, they are typically created through the grammaticalization of ordinary words such as nouns or verbs. This has happened for example, with English ‘have’ ‘do’ and ‘will’. If we look at their use in verb phrase like ‘has seen’ ‘did not understand’ or ‘will go’, we can see that

their original meanings ('process', 'act', 'want') have been completely bleached out in these contexts in favour of their grammatical functions as auxiliaries (55, 56).

5.1.2. ENSYGLOGE

It is necessary to eliminate the differences within the existing languages to come up with their universal nature. First of all, the values of different graphemes are analyzed with the help of an HTML page entitled "ENSYGLOGE" which is programmed by Mr. Shan Augustine, Associate Professor, Department of Computer Science, Mar Augustinose College, Ramapuram. The home page is given below (See figure 5.2).

With the help of this HTML program it can be proved that the values of graphemes are man-made. At present there are 36365 Unicodes available. Within this simple program the value of all English letters is equalized with some selected Unicodes. The pronunciation of each English letter is also substituted with different phonetic representation. If any language is transliterated with the help of English letters, those transliterations will also be converted to these selected graphemes (Unicodes) and phonetic representations. (See figure 5.2).

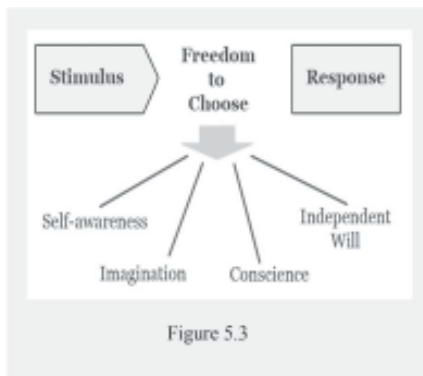


Figure 5.2

This is the same procedure taking place when the reflected realities (especially of languages) are received with the sense organs. All of them are converted to bio-electricity (neuro- impulses) as the letters are converted to the ENSYGLOGE (selected Unicodes). The phonetic representations will be changed according to the different placing of the English letters. It is the same way meaning changes within the brain, because variation in frequency and change in quantity of impulse cause changes in meaning in a slight manner. Therefore, the values of the grapheme in all the living and dead languages are limited and at the same time they are arbitrarily placed. No grapheme carries a single pronunciation. Therefore the graphemes of a word are not sufficient to carry its sound units and those sound units change immediately after utterance (as in Sphota theory). It causes the change in meaning.

5.1.3 Meaning Generation in the Brain

When the universal nature of language is analyzed in the context of neurolinguistics, it is clear that impulses change each and every second. It causes the change in meaning. Impulses are in flux and meaning is generated by the process of amalgamating different sensory impulses. These impulses are generated and transmitted with the help of chemical reactions within the body. The body has also the capacity to amplify these impulses.



5.2. How do utterances become meaningful?

Human beings have the capacity to generate infinite utterances. These utterances become meaningful only when an object is attributed to it. Ferdinand de Saussure's "sign" which consists of "signifier" and "signified" ("vakya" and "vacya" in sanskrit linguistic theory) can also be taken into consideration. Though an utterance is given an object, a series of utterances are

necessary to define the meaning of that utterance. Michael Swan gives an entry on the development of language in his book entitled *Grammar*.

Over very long periods, the larger processes of languages change appear to be cyclical. Ordinary words are grammaticalized into auxiliaries and particles; these merge with nouns or verbs to become inflections; as phonetic erosion reduces the inflections to the point where they lose their values, new auxiliaries and particles are created to fill the gaps; these *begin* to merge with nouns or verbs in their turn. The initial process of grammatical creation is clearly visible in the way new languages..... creoles.... develop from pidgins.... While we will never know how language was born, many linguists believe that the development of creoles out of pidgins may recapitulate an original two-stage process of language evolution, whereby true languages developed out of the most primitive ‘protolanguage’ which had little or no grammar, and would therefore have been of limited value for communication. If this was the case, grammaticalization certainly played a central part in the transformation (58, 59).

5.3. Expansive Grammar

Competency can be understood by analyzing the capacity of a user to enlarge a noun and to extend a verb in order to expand a particular sentence to convey a particular meaning. Therefore structural changes will affect the meaning as a sentence is analyzed subjectively. This universal phenomenon of all tongues is represented with the help of p-markers (Phrase makers, a tree - like representation by which sentence analysis is portrayed) by which different sentences from English are expanded. Here four kinds of sentences are analyzed with the help of rewrite rules of Expansive Grammar.

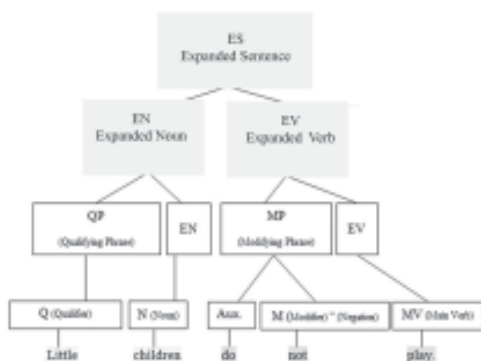


Figure 5.4

The example given above (Figure 5.4) is a negative sentence. This sentence is an expanded form of the noun

“children” and of the verb “play”. A negative indication is placed in between the auxiliary verb and the main verb. This is known as V-Fission. V-Fission not only takes place in negative sentence but also in interrogative, exclamatory and poetic expressions too. But in agglutinative languages like Malayalam and Syriac V-Fusion takes place instead of V-Fission to represent sentence transformation. Changes in the tense and number of the subject also affect the auxiliary verb in V-Fission. V-Fission deals with not only negative infix but also with Subject infix (“Subject” here means “Subject of a sentence”). But in V-Fusion affixes are amalgamated with the verb as if they were one.

The following figures show how V-Fission has taken place in interrogative sentences. An interrogative phrase is added to demonstrate the place where the action has taken place. Varieties of modifiers are placed before

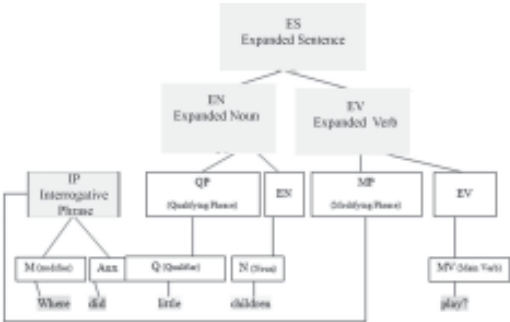


Figure 5.3 Question

the auxiliary verb to show manner, place, object, time, and subject and so on (See Figure 5.5). It is clear from Figure 5.5 that the question “Where did little children play?” is also derived from the sentence “Little children played (somewhere).” The interrogative phrase is placed before the verb and after the subject in agglutinative languages. But the interrogative modifier is placed before a verb in V-Fusion as if in V-Fission. The interrogative sentence is also an expanded form of a noun and a verb (See figure 5.6).



Figure 5.6: Where/No Question

Imperative sentences in all languages begin with extended verb (EV). But the hidden subject is obvious as in Figure 5.7. There is only an unchangeable noun (second person) as the subject. It does not mean that EN is part of ES. Here EV becomes an advised or forced action which is to be done by the EN. The imperative sentence is also derived from the assertion “You get out.” But the EV is

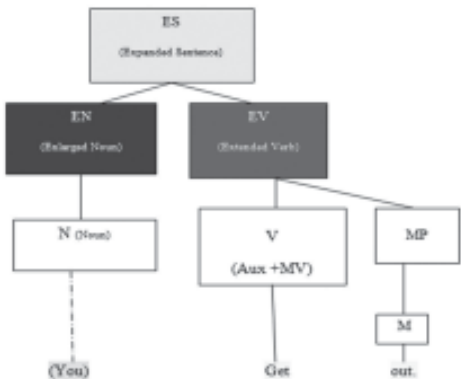


Figure 5.7 Imperative Sentence

emphasized to generate the requested or forced nature of the action what is to be done by the subject in **EN**. This way of giving importance is known as “Projecting”. Projecting is used in all varieties of sentences. In the following example (Figure5.8) **EP** is projected to express a sudden feeling. This sentence is also derived from an

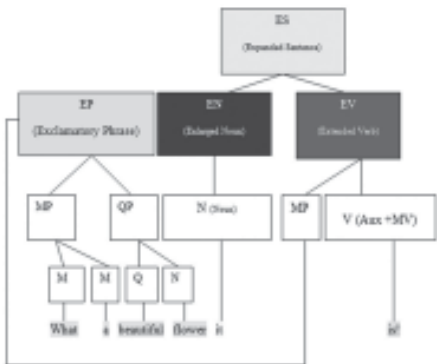
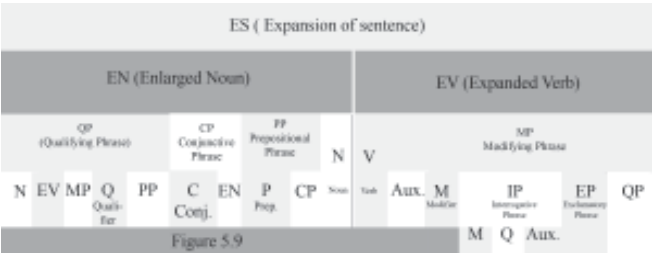


Figure 3.4 Exclamatory Sentence

assertion “Flower is very beautiful.” *Projecting* is the way how parts of sentences are given importance by misplacing them from one to another. *V-Fission*, *V-Fusion* and *Projecting* are the common features of all languages by which varieties of sentences are formed and transformed in a unique manner from one to another. It is also how knowledge is generated within the brain. Language acquisition also is a process of conjoining different transformed reflected realities. This conjoining becomes expanded when various impulses are joined to it. The following figure (Figure 5.9) shows how a sentence gets expanded by enlarging noun and extending verb.



5.4. Conclusion

EG is applicable to all varieties of languages including agglutinative types (e.g. Malayalam, Syriac and so on). The expansion of noun and verb is part of the universal

structure and the way of such expansion changes the meaning of the expression. When these words are arranged one after another in a sentence the expanded forms get meaning. The meaning of a sentence will change according to the pattern of suprasegmental features. Foreign language learners study the noun and the verb along with their structure and then they learn to expand the sentence. Structural changes affect the meaning (*Projecting*). Therefore there is universality in structural semantics in language acquisition, because *EG* is the only way of language acquisition. *EG* deals with the logical continuity of competency. All these actions happen in the brain. Damage in the brain or sensory organs may lead to illogical competency (i.e. it causes infinite structural variations in *EG*) because illogical structural shifts may lead to ambiguity. Through language processing human beings use words to communicate ideas and feelings, and communications are processed and understood within the brain. Language is the outcome of an internal structure. Therefore there is universality in structural semantics and language acquisition.

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